

Application No. 10/725,545
Amendment dated May 7, 2008
Reply to Office Action of December 7, 2008

Docket No.: 0465-1111P

AMENDMENTS TO THE DRAWINGS

The attached sheet of drawings includes changes to Fig. 1, whereby "external memory" has been amended to read -- external DRAM memory --.

REMARKS

Applicant submits that the present application, as currently amended, is in condition for allowance

Claims 1-15 are pending, with claims 1-2, 4-7 and 9-13 amended, and claims 14-15 added by the present amendment.

In the Official Action, Fig. 1 was objected to; the specification was objected to; claim 1 was rejected under 35 U.S.C. § 102(b) in view of Chen (U.S. Patent No. 6,618,442); claims 2-3 were rejected under 35 U.S.C. § 103(a) in view of Chen and Lim (U.S. Patent No. 6,295,320); claims 3-4 were rejected under 35 U.S.C. § 103(a) in view of Chen, Lim and Rhee (U.S. Patent No. 7,012,961); claim 5 was rejected under 35 U.S.C. § 103(a) in view of Chen, Lim, Rhee and Rodriguez (U.S. Patent No. 7,136,417); claim 5 was rejected under 35 U.S.C. § 103(a) in view of Chen, Lim, Rhee and Lin (U.S. Patent No. 6,944,226); claims 7-8 were rejected under 35 U.S.C. § 103(a) in view of Chen, Lin and Wallace (U.S. Patent Publication No. 2004/00860000); claims 9 and 12-13 were rejected under 35 U.S.C. § 103(a) in view of Chen, Lin, Wallace and Rhee; and claims 10-11 were indicated as containing allowable subject matter.

Applicant acknowledges with appreciation the indication of allowable subject matter.

The specification and Fig. 1 are amended as requested in the Official Action. The Abstract is amended to be less than 150 words. Independent claims 1 and 7 are amended to recite additional features disclosed in Applicant's originally filed specification. New claims 14-15 are directed to methods substantially corresponding to the systems recited in amended claims 1 and 7. Claims 1-2, 4-7 and 9-13 are further amended to correct various antecedent basis

informalities noted by Applicant and to avoid an interpretation under 35 U.S.C. §112, sixth paragraph. No new matter is added.

Briefly recapitulating, amended claim 1 recites, *inter alia*,

an IDCT (Inverse Discrete Cosine Transform) device configured to generate an IDCT transformed signal by

performing an 8×8 IDCT transform on the VLD/IQ output signal if the VLD/IQ output signal is the MPEG-formatted video signal, and

performing an 8×8 IDCT or a 4×8 IDCT transform on VLD/IQ output signal if VLD/IQ output signal is the DV-formatted video signal;

Chen describes a method and apparatus for transcoding DV encoded signals to MPEG encoded signals for storage on DVD media. In particular, FIG. 4 of Chen is a block flow diagram of the steps performed by Chen's conventional DV decoding process. The conventional DV decoding process of Chen includes performing an inverse DCT (IDCT) to transform the coefficient data into pixel values. A test is made to determine the DCT mode used to encode the video signals at step 410. There are two types of IDCT processes, namely the 8x8 IDCT and 2-4x8 IDCT. If 8x8 DCT encoding was utilized in creating the DV encoded signal, the 8x8 IDCT is performed at step 412. If the 2-4x8 DCT encoding was utilized, however, the 2-4x8 IDCT process is performed at step 414. Both modes yield an 8x8 block of pixel values. However, the conventional art of Chen does not include performing an 8×8 IDCT transform on the VLD/IQ output signal if the VLD/IQ output signal is the MPEG-formatted video signal.

In contrast to the conventional art of Chen, the invention of Chen includes operating on intermediate data to alleviate the need for a) IDCT of the conventional DV decoder, and b) the forward DCT of the conventional MPEG encoder, thereby greatly reducing the computational

complexity of transcoder 217. Because Chen alleviates the need for IDCT in the DV decoder, the invention of Chen teaches away from Applicant's claimed invention.

Thus, the conventional art of Chen and the invention of Chen each do not disclose or suggest an IDCT (Inverse Discrete Cosine Transform) device that is capable of processing both a MPEG-formatted video signal and a DV-formatted video signal.

Furthermore, because the conventional art of Chen and the invention of Chen each do not disclose or suggest an IDCT (Inverse Discrete Cosine Transform) device that is capable of processing both a MPEG-formatted video signal and a DV-formatted video signal, Chen does not disclose or suggest Applicant's claimed a) performing an 8×8 IDCT transform on the VLD/IQ output signal if the VLD/IQ output signal is the MPEG-formatted video signal, and b) performing an 8×8 IDCT or a 4×8 IDCT transform on VLD/IQ output signal if VLD/IQ output signal is the DV-formatted video signal.

Similarly, Chen does not disclose or suggest Applicant's claimed adder and motion compensator, wherein a) if the IDCT transformed signal is an MPEG-formatted I-picture or a DV format signal, the adder is configured to bypass and store the IDCT transformed signal into an external memory, and b) if the IDCT transformed signal is an MPEG-formatted P-picture or an MPEG-formatted B-picture, b1) the motion compensator is configured to generate a motion compensated signal by performing motion compensation on a current frame based on motion information and a previous frame stored in the external memory, and output the motion compensated signal to the adder, and b2) the adder is configured to add the IDCT transformed signal and the motion compensated signal, and store the added signal into the external memory.

MPEP § 2131 notes that “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). See also MPEP § 2131.02. “The identical invention must be shown in as complete detail as is contained in the ... claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Because Chen does not disclose or suggest all of the features recited in claim 1, Chen does not anticipate the invention recited in claim 1, and all claims depending therefrom.

Applicant has considered the remaining references and submits that the remaining references do not cure the deficiencies of Chen. As none of the cited art, individually or in combination, discloses or suggests at least the above-noted features of independent claim 1, Applicant submits the inventions defined by claim 1, and all claims depending therefrom, are not rendered obvious by the asserted references for at least the reasons stated above.¹

Amended independent claim 7 recites, *inter alia*, a single combined DV/MPEG video decoder configured to

receive the MPEG system decoder output signal and the DV system decoder output signal as a DV/MPEG video decoder input signal,

share a plurality of internal blocks to decode both the MPEG system decoder output signal and the DV system decoder output signal to generate decoded data, and

store the decoded data into the external memory,

perform an 8×8 IDCT if the DV/MPEG video decoder input signal is the MPEG system decoder output signal, and

¹ MPEP § 2142 “...the prior art reference (or references when combined) must teach or suggest all the claim limitations.

perform an 8×8 IDCT or a 4×8 IDCT if the DV/MPEG video decoder input signal is the DV system decoder output signal.

For reasons similar to those presented relative to claim 1, Chen does not disclose or suggest sharing a plurality of internal blocks to decode both the MPEG system decoder output signal and the DV system decoder output signal to generate decoded data. Chen also does not disclose or suggest a) performing an 8×8 IDCT if the DV/MPEG video decoder input signal is the MPEG system decoder output signal, and b) performing an 8×8 IDCT or a 4×8 IDCT if the DV/MPEG video decoder input signal is the DV system decoder output signal.

Wallace describes a communication protocol over the serial bus allows a peripheral device to control the flow of data between a host computer and the peripheral device so as to maintain synchronization to a periodic reference signal. Using the IEEE-1394 protocol, the flow control messages are sent using an asynchronous protocol, whereas uncompressed video and audio data are sent using an isochronous protocol. Streams of uncompressed video and audio data are transferred from the host computer over a serial bus to the peripheral device, where the peripheral device performs operations on the data such as encoding the data into a standard format, such as DV and MPEG, or generating an analog video signal.

Lin describes a transcoding system that translates between coding formats based primarily on the Discrete Cosine Transform (DCT). FIG. 6 of Lin illustrates a general block diagram of a software transcoder that includes a decoder module 30 and an encoder module 40. The decoder module 30 takes frames of DV data as input data and produces raw DCT coefficients as output data. The encoder module 40 requantizes the DV DCT coefficients to MPEG-2 DCT coefficients and encodes the coefficients as MPEG-2 data.

However, Wallace and Lin fail to cure the deficiencies of Chen. That is, both Wallace and Lin fail to disclose or suggest a) sharing a plurality of internal blocks to decode both the MPEG system decoder output signal and the DV system decoder output signal to generate decoded data; b) performing an 8×8 IDCT if the DV/MPEG video decoder input signal is the MPEG system decoder output signal; and c) performing an 8×8 IDCT or a 4×8 IDCT if the DV/MPEG video decoder input signal is the DV system decoder output signal.

Applicant has considered the remaining references and submits that the remaining references do not cure the deficiencies of Chen, Wallace and Lin. Thus, Applicant submits the inventions defined by claim 7, and all claims depending therefrom, are not rendered obvious by the asserted references for at least the reasons stated above.

Applicant furthermore submits that none of the applied references disclose or suggest the methods recited in new claims 14-15.

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Conclusion

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Michael Monaco Reg. No. 52,041 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.147; particularly, extension of time fees.

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Respectfully submitted,

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